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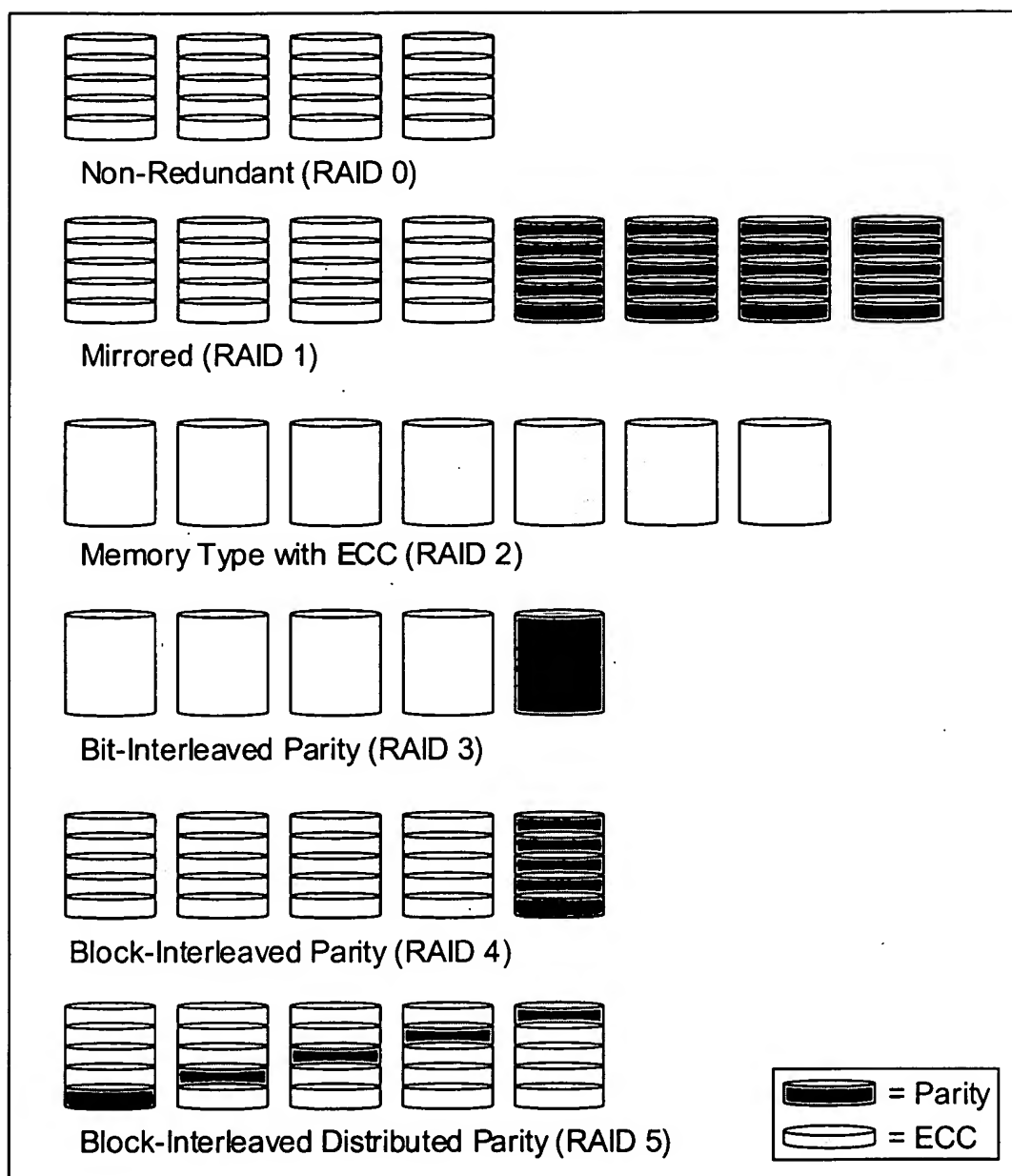


Figure 1

RAID 0	Data is striped across drives with no data redundancy provided. Multiple disks are used to improve performance, but there is no logic present to protect/recover data. The performance gain is attained by using large blocks of data I/O and spreading the load across many disks.
RAID 1	Data redundancy is obtained by storing exact copies on mirrored pairs of drives. Two or more copies of data are written to two or more different disks at the same time. Data may be read from any disk, based on device availability. Although reliability is high, two or more times the amount of disk storage must be purchased.
RAID 2	Data is striped at the bit level; multiple error-correcting disks provide redundancy; not a commercially implemented RAID level.
RAID 3	Data is striped across all data drives, and one drive is set aside for parity information. This does well for large files where large blocks size and sequential I/O are used; not practical for small arrays.
RAID 4	Data is written in blocks, and one drive is set aside for parity information. This type is good for large block transfers; the parity drive is overworked if many small transfers are attempted-low IOPs.
RAID 5	Data is striped in blocks, and parity information is rotated among all drives in the array. This type is best for small transfers-high IOPs.
RAID 6	This level of RAID is a variation on the foundation of RAID 5 where an additional Parity Stripe is recorded which adds another level of protection for the data set. This RAID implementation has poor write performance.
RAID 7	This is a specialized RAID system that uses an embedded RTOS and specialized controller H/W. It is very expensive and proprietary.
RAID 10	Data is striped across drives and mirrored on another striped set. The advantage is that the striped sets provide higher bandwidth access to large blocks of data. This is a very expensive RAID solution
RAID 0+1	Data is striped on a RAID 0 set and also mirrored to a RAID 0 set. The resulting structure has very good performance, but is expensive. RAID 0+1 requires a minimum of 4 drives.
RAID 53	This is really a RAID (0+3). It consists of a standard RAID 3 with a RAID 0 attached in parallel. It is a way to boost the read performance of a RAID 3. Not used much.

Figure 2

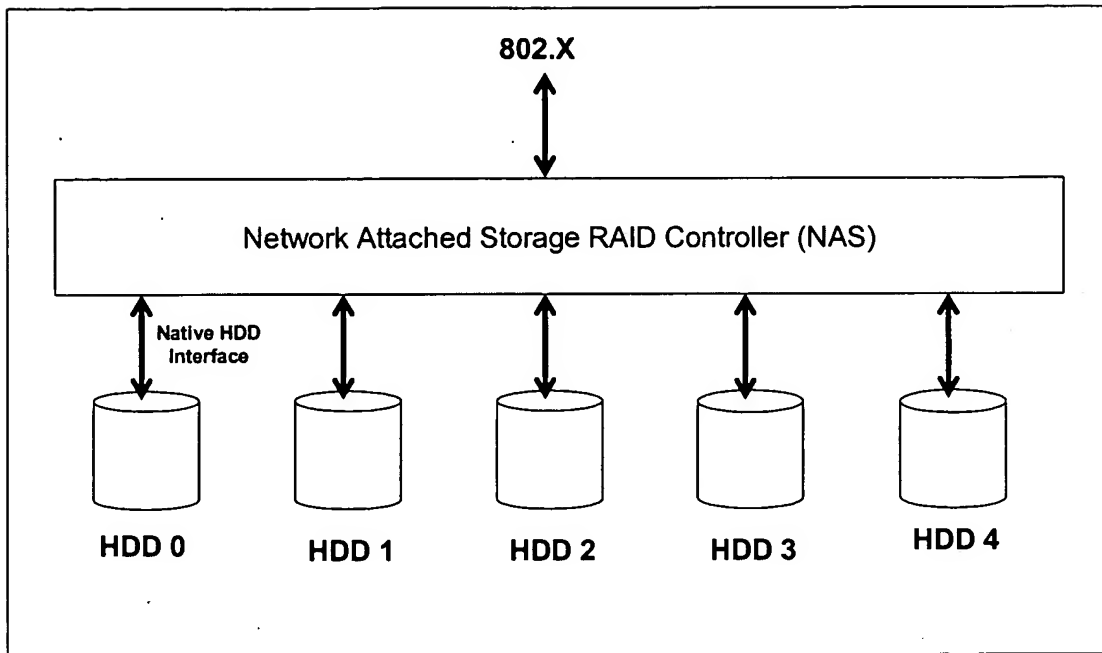


Figure 3

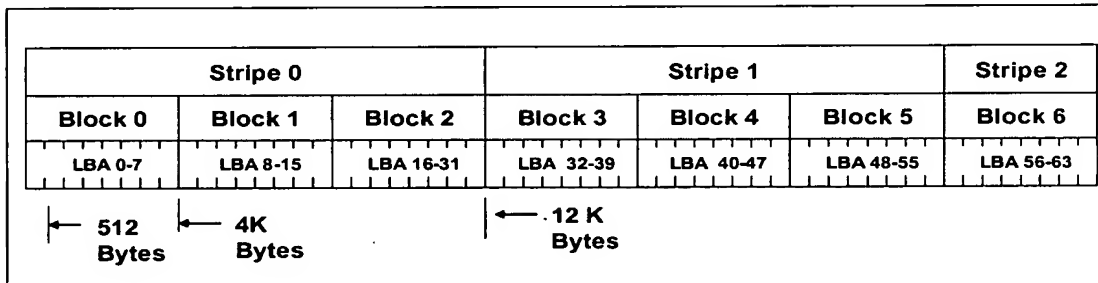


Figure 4

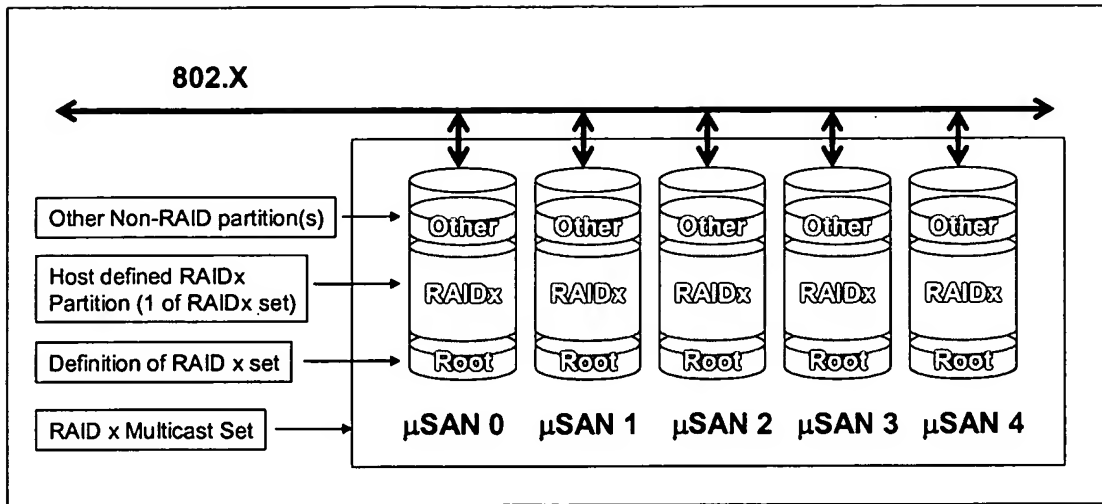


Figure 5

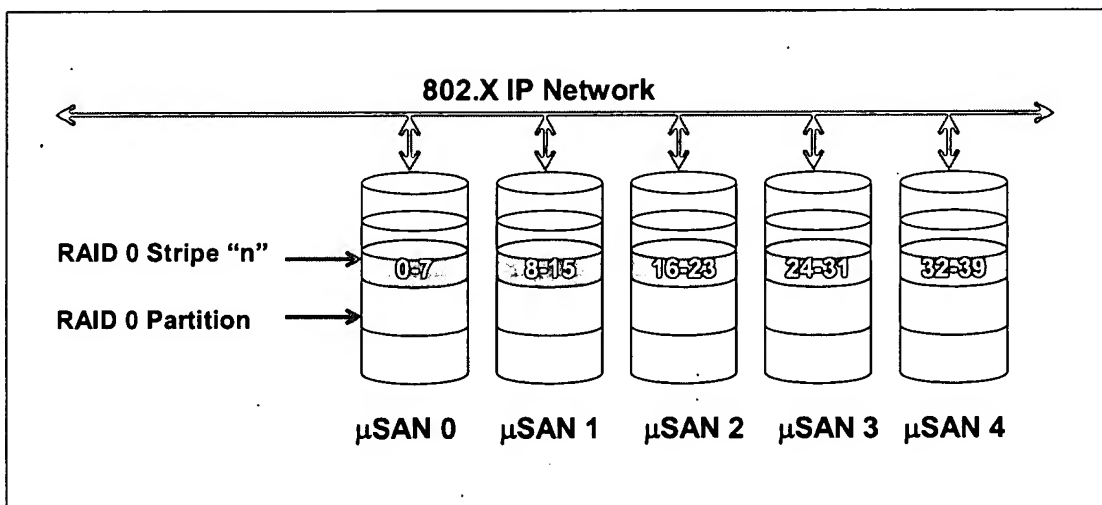


Figure 6

	Write Data Command	Read Data Command
Access Data as LBAs	Multicast: Transfer	Multicast: Request Transfer
Access Data as Block	Multicast: Transfer	Multicast: Request Transfer
Access Data as Stripe	Multicast: Transfer Stripe	Multicast: Request Transfer

Figure 7

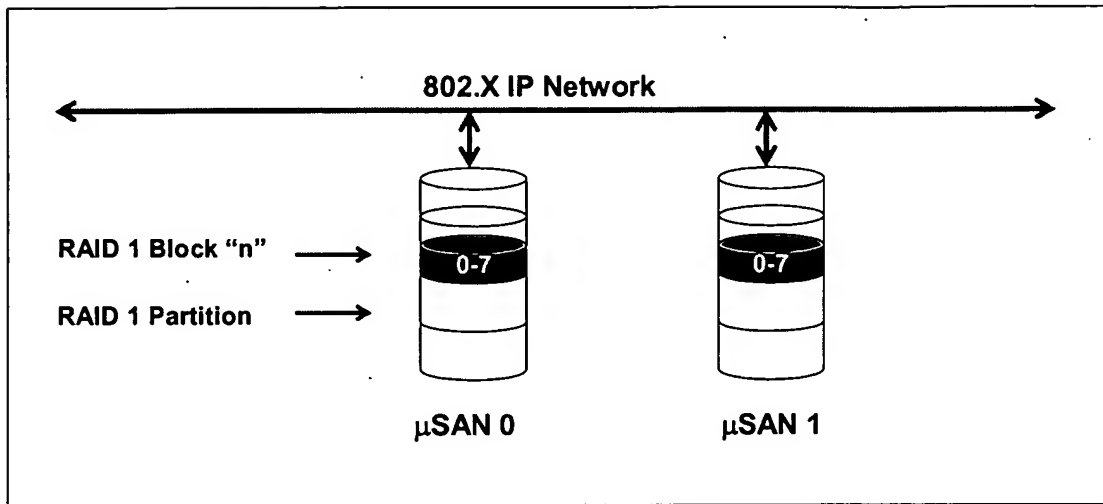


Figure 8

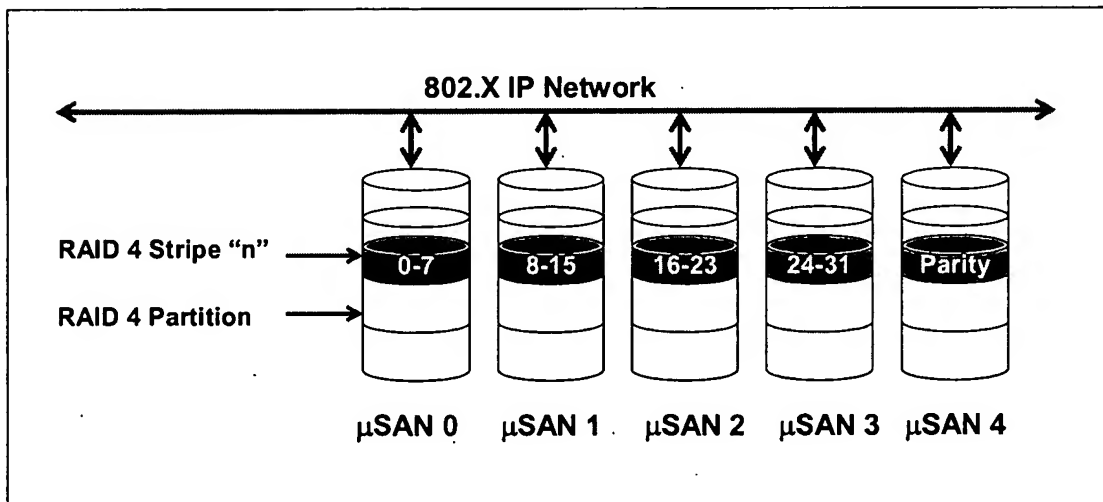


Figure 9

	Write Data Command	Read Data Command
Access Data as LBAs	Multicast: Transfer	Multicast: Request Transfer
Access Data as Block	Multicast: Transfer	Multicast: Request Transfer
Access Data as Stripe	Multicast: Transfer Stripe	Multicast: Request Transfer

Figure 10

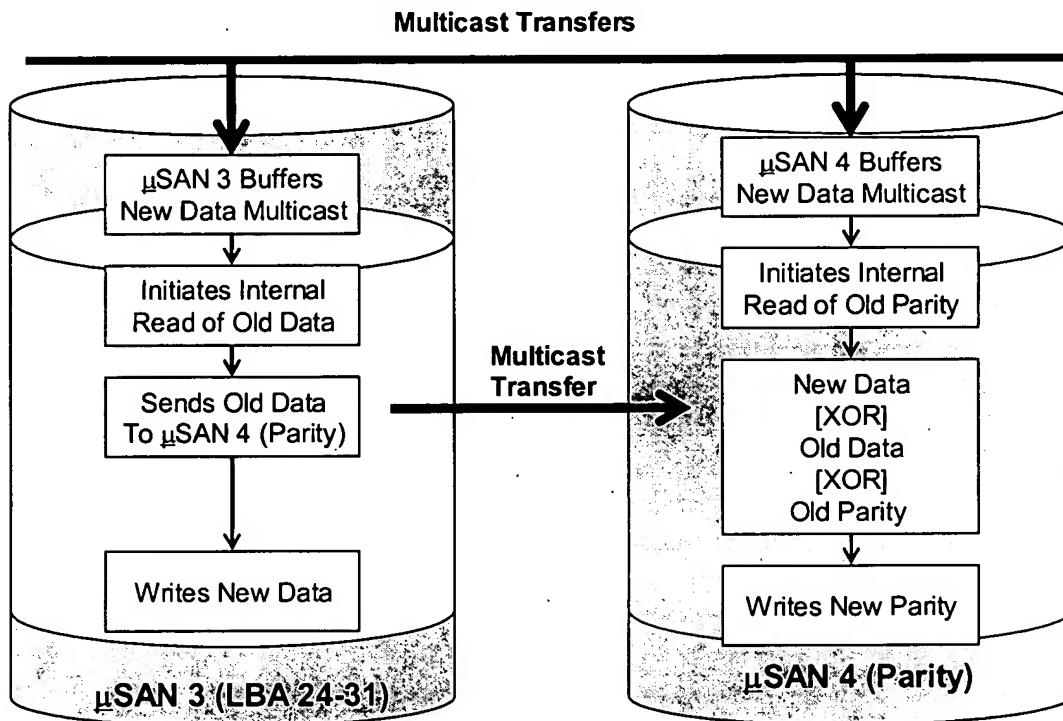


Figure 11

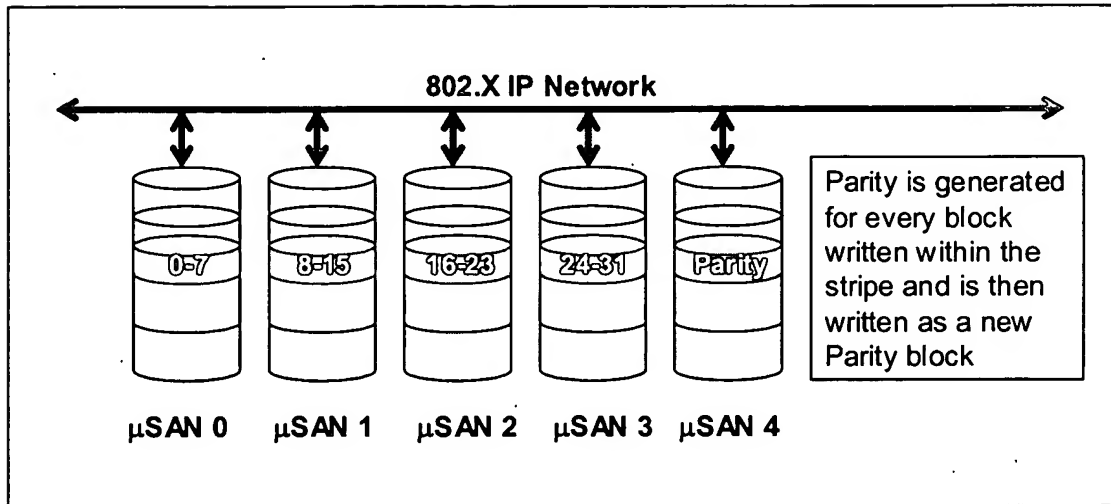


Figure 12

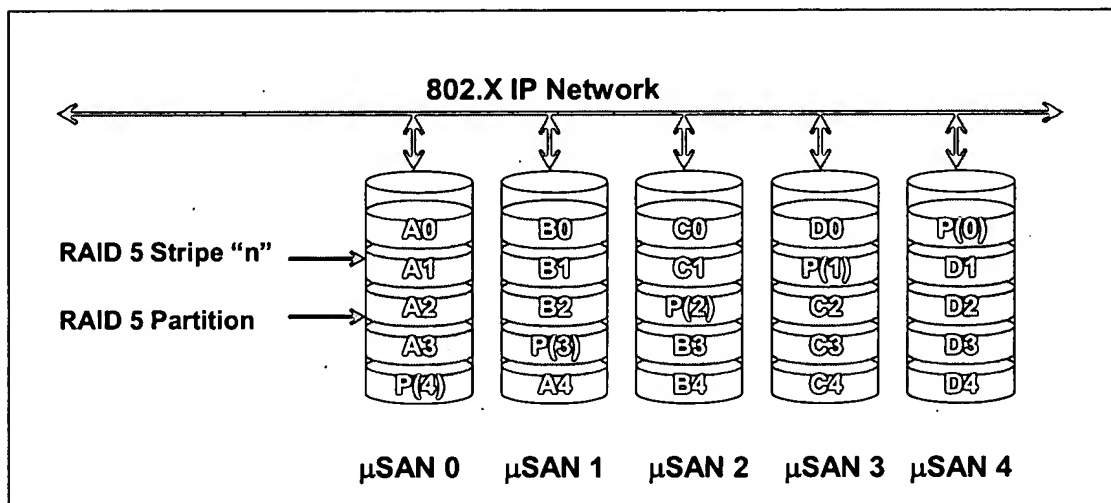


Figure 13

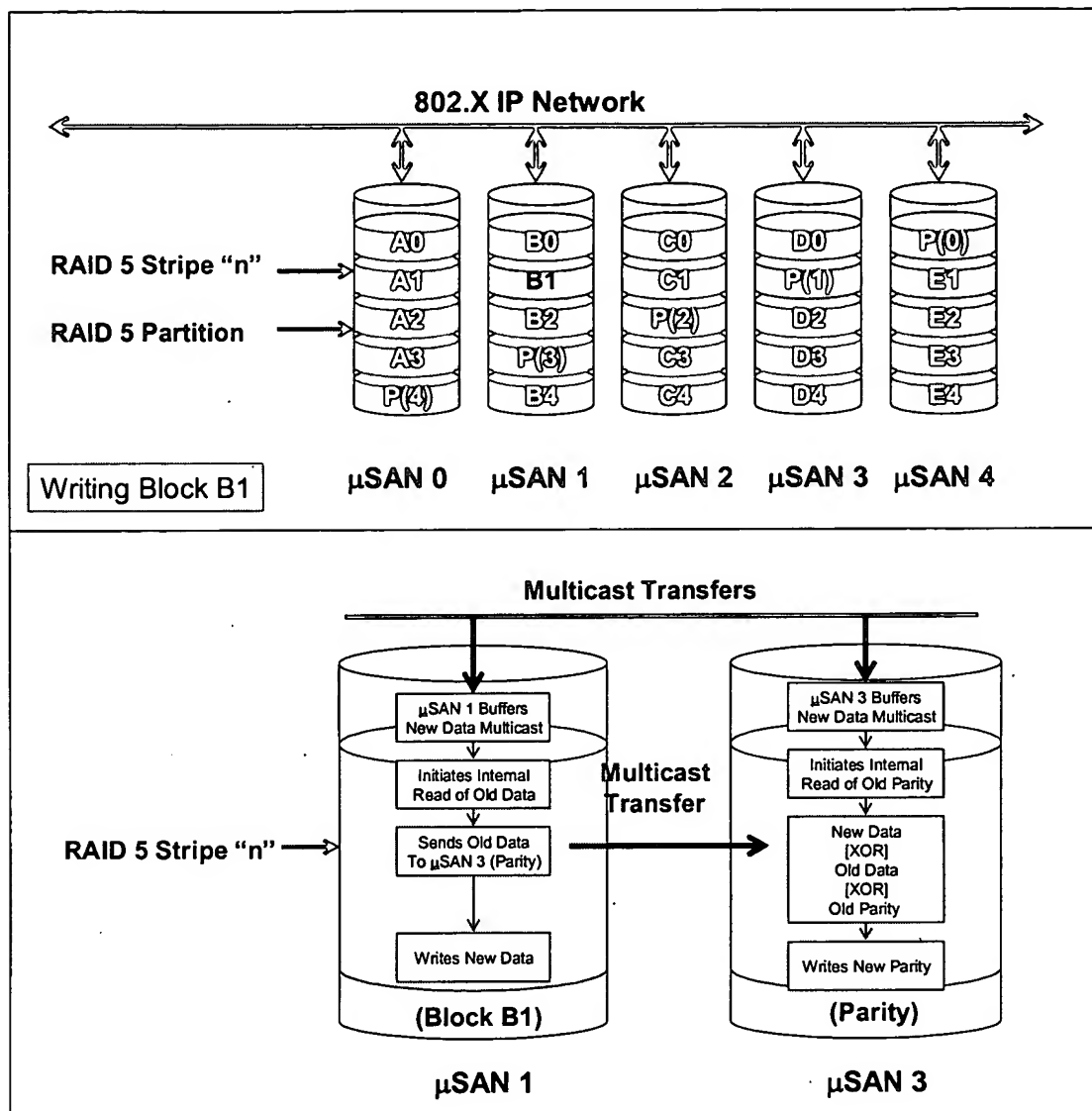


Figure 14

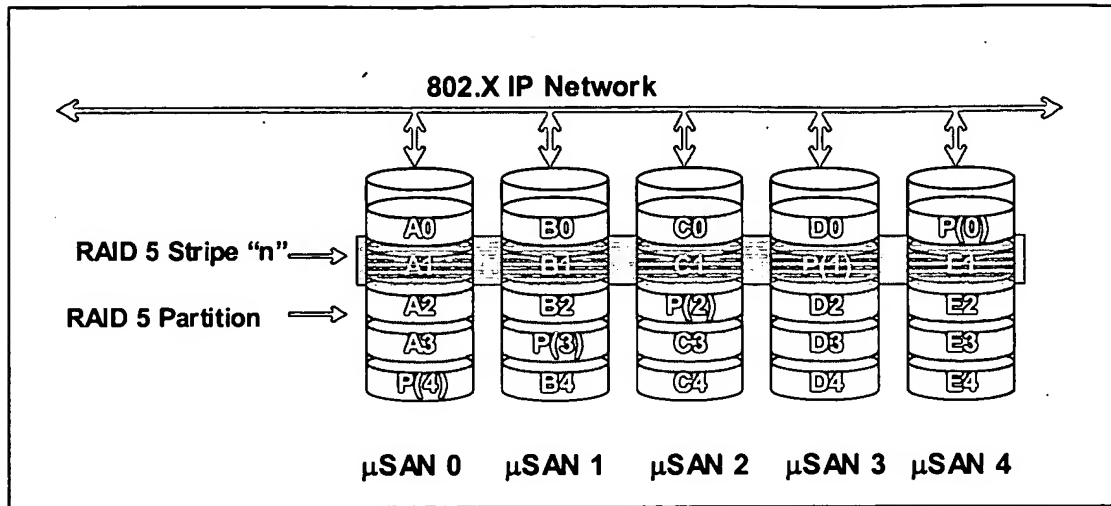


Figure 15

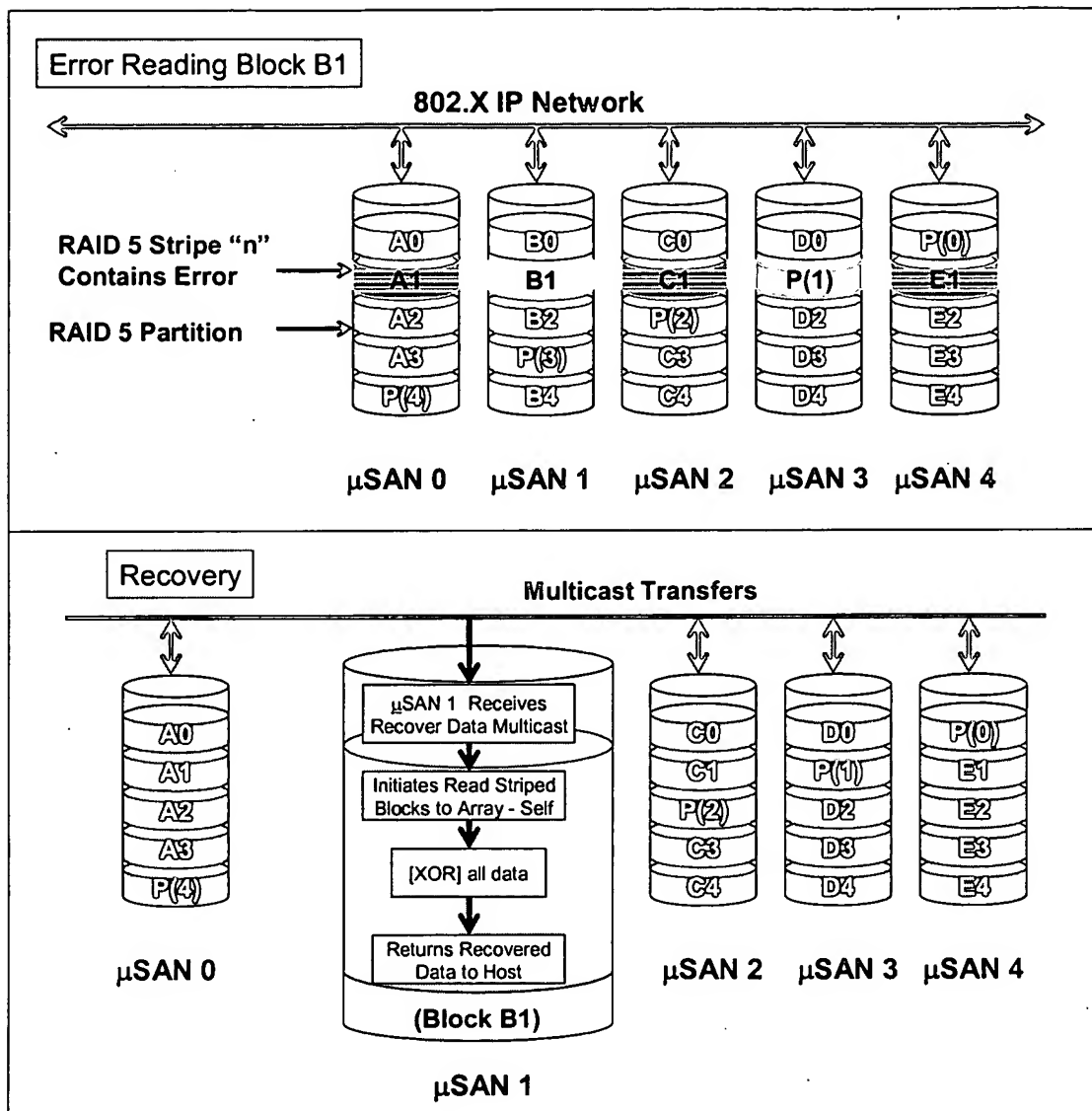


Figure 16

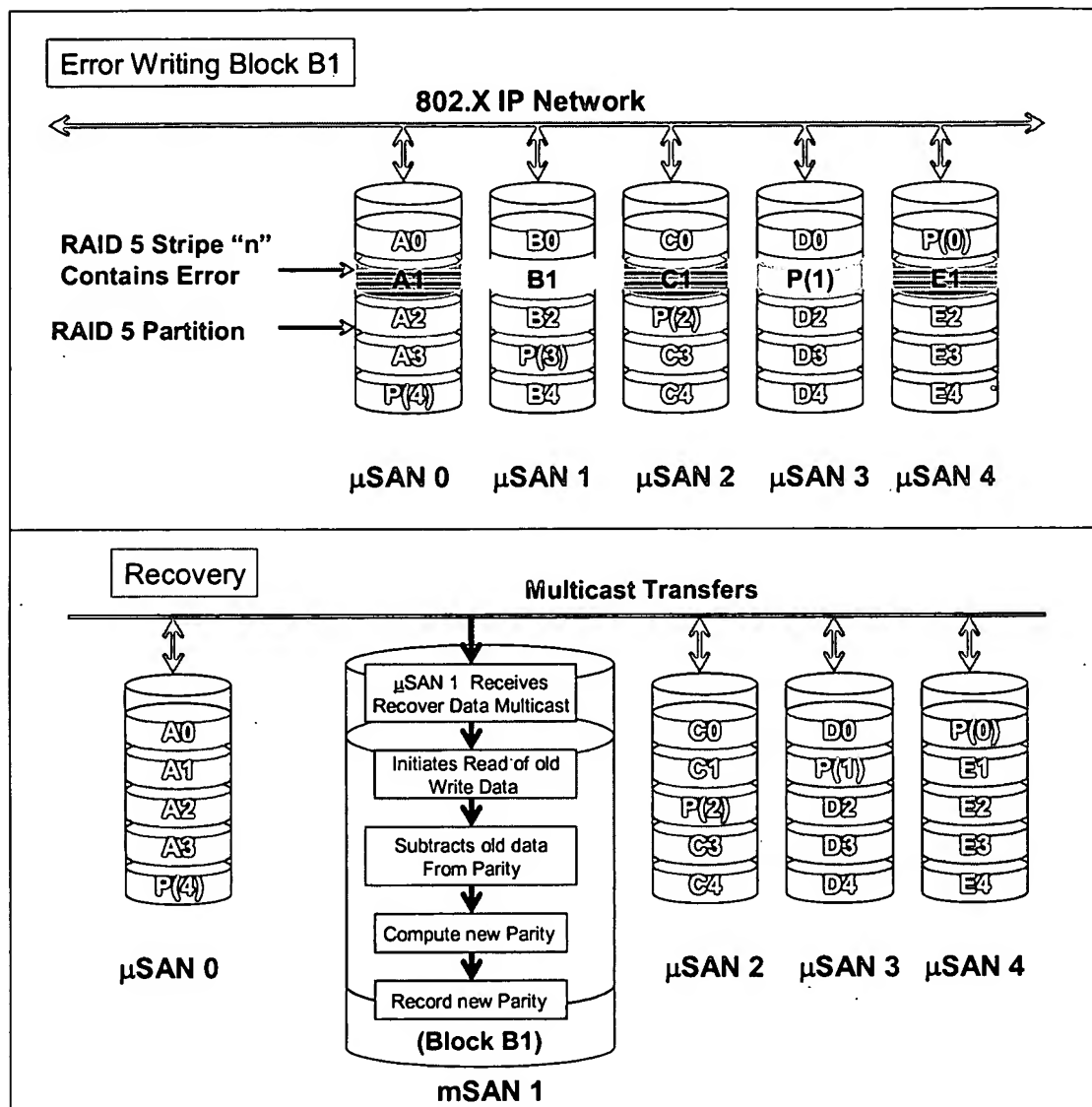


Figure 17

	<i>Command</i>	<i>Token</i>	<i>Delimiter</i>	<i>LBA</i>	<i>Data</i>
<i>Size</i>	1 byte	X bytes	1 byte	5 bytes	512* bytes
<i>Data (hex)</i>	21	ASCII	0	Binary	Binary

* - 530 bytes if the block size has been extended

Figure 18

	<i>Command</i>	<i>Token</i>	<i>Delimiter</i>	<i>LBA</i>	<i>Data</i>
<i>Size</i>	1 byte	X bytes	1 byte	5 bytes	512* bytes
<i>Data (hex)</i>	41	ASCII	0	Binary	Binary

* - 530 bytes if
the block size has
been extended

Figure 19